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| APPLICATION NO.               | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------|-------------|----------------------|---------------------|------------------|
| 10/779,681                    | 02/18/2004  | Jin Yong Kim         | 2658-0316P          | 8546             |
| 2292                          | 7590        | 11/28/2007           | EXAMINER            |                  |
| BIRCH STEWART KOLASCH & BIRCH |             |                      | CHU, KIM KWOK       |                  |
| PO BOX 747                    |             |                      | ART UNIT            | PAPER NUMBER     |
| FALLS CHURCH, VA 22040-0747   |             |                      | 2627                |                  |
|                               |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[mailroom@bskb.com](mailto:mailroom@bskb.com)

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/779,681             | KIM, JIN YONG       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Kim-Kwok CHU           | 2627                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on Amendment filed on 9/17/2007.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,4,6-10,13-23 and 25-40 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,4,6-10,13-23,25-36,38 and 39 is/are rejected.
- 7) Claim(s) 37 and 40 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. 09/334,894.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

***Response to Remarks***

1. Applicant's Amendment and Remarks filed on September 17, 2007 have been fully considered.

With respect to the rejected Claim 28, Applicant does not agree that the optical aberration being less than  $0.07\lambda$  is an inherent property of an objective lens under Marchel's criterion (page 12 of the Remarks, last paragraph, first 5 lines). Accordingly, in the present final Office Action, the claimed limitation "optical aberration" is interpreted as an optical aberration of the whole optical system and not limited to a single objective lens.

***Obvious type Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 4, 6-10, 13-23, 25, 26 and 27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 5, 7-16 of U.S. Patent No. 6,345,034.

Although the conflicting claims are not identical, they are not patentably distinct from each other because: The patent claims include all of the limitations of the instant application claims, respectively. The patent claims also include additional limitations. Hence, the instant application claims are generic to the species of invention covered by the respective patent claims. As such, the instant application claims are anticipated by the patent claims and are therefore not patentably distinct therefrom. (See Eli Lilly and Co. v. Barr Laboratories Inc., 58 USPQ2D 1869, "a later genus claim limitation is anticipated by, and therefore not patentably distinct from, an earlier species claim", In re Goodman, 29 USPQ2d 2010, "Thus, the generic invention is 'anticipated' by the species of the patented invention" and the instant "application claims are generic to species of invention covered by the patent claim, and since without terminal disclaimer, extant species claims preclude issuance of generic application claims").

4. Claims 28-36, 38 and 39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2 and 4 of U.S. Patent No. 6,335,034 in view of Applicant's admitted prior art of Marchel's criterion in the above '034 patent (columns 1 and 2, last 2 lines to first 10 lines respectively) and U.S. Patent 5,917,791 of Tsuchiya et al.

With respect to the dependent claim 28 and independent Claims 29, 31, 33, 35 and 38, in order to reduce the read/write error rate of Applicant's high density recording medium under the variation of thickness of the substrate, the tilt margin, the wavelength and the numerical aperture, it would have been obvious to one of ordinary skill in the art to restrict the medium's optical aberration to a value smaller than  $0.07\lambda$  so as to provide beam spots within a diffraction limited and an excellent signal to noise ratio.

On the other hand, with respect to Claims 35, 36, 38 and 39, it would have been obvious to use a numerical aperture changing means to obtain respective numerical apertures as disclosed in the prior art of Tsuchiya in Applicant's claimed optical recording medium, because such additional features enable an optical recording and reproducing system to read/write data on various medium formats such as CD, DVD and HD-DVD.

**Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 29-36, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (U.S. Patent 5,917,791) in view of Applicant's admitted prior art (US 2004/0160888, section 0008 first 4 lines).

7. Tsuchiya teaches an optical recording medium very similar to that of the present invention as in Claims 29 and 30. For example, Tsuchiya teaches the following:

(a) with respect to Claim 29, the optical recording medium 1 suitable for recording/reproducing information (Fig. 6) by irradiating a laser beam (Fig. 6; from a laser source 9) at a wavelength between 395-425 nm onto an optical recording medium (Fig. 1; wavelength used is in a range 350 to 450 nm; column 3; lines 8-11), the laser beam being incident from a side of the optical recording medium 1 through an objective

lens 2 having a numerical aperture of 0.62-0.68 (Fig. 1; numerical aperture in a range from 0.55 to 0.65), the optical recording medium 1 comprising at least one substrate 1 having a thickness of more than 0.2 mm (Fig. 1; substrate thickness from 0.55 to 0.65 mm); and at least one recording layer having a capacity of more than 13.8 Gigabytes (Fig. 1; HSD2 can stores more than SD2 and SD2 stores 10 Gbytes; column 1, lines 25-30), wherein the optical recording medium 1 has a tilt margin same as DVD (HSD disc has similar storage capacity as a DVD and therefore has same tilt margin).

However, Tsuchiya does not teach that an optical aberration applicable to the optical recording medium 1 is less than  $0.07 \lambda$  where the  $\lambda$  is the wave length.

Applicant's admitted prior art disclosed that Marchel's criterion of an optical aberration applicable to an optical medium is less than  $0.07 \lambda$  where the  $\lambda$  is the wave length (Marchel's criterion; Applicant's specification, section 8, lines 1-4).

Although Tsuchiya does not disclose the range of the optical aberration used in his optical recording medium, in order to reduce the read/write error rate of the high density recording medium, it would have been obvious to one of ordinary skill in the art to restrict Tsuchiya's optical aberration smaller than  $0.07\lambda$  as admitted by the Applicant in his

specification which disclosed that Marchel's criterion should be applied so as to provide beam spots within a diffraction limited and an excellent signal to noise ratio.

(b) with respect to Claim 30, Tsuchiya in view of Applicant's admitted prior art also teaches that wherein the optical aberration depends on at least one from the thickness of the substrate, the tilt margin, the wavelength and the numerical aperture (Applicant's specification, section 8, lines 4-10).

8. Method claims 31 and 32 are drawn to the method of using the corresponding apparatus claimed in claims 29 and 30. Therefore method claims 31 and 32 correspond to apparatus claims 29 and 30 and are rejected for the same reasons of obviousness as used above.

9. Claims 33 and 34 have limitations similar to those treated in the above rejection, and are met by the references as discussed above.

10. Method claims 35 and 36 are drawn to the method of using the corresponding apparatus claimed in claims 29 and 30. Therefore method claims 35 and 36 correspond to apparatus claims 29 and 30 and are rejected for the same reasons of obviousness as used above. Claims 35 and 36 however also recite the following limitations which are also taught by the prior art of Tsuchiya:

(a) with respect to Claim 35, changing a numerical aperture of an objective lens according to the determined thickness (Figs. 1 and 6; device 3 is an aperture controller).

(b) with respect to Claim 36, the numerical aperture of the objective lens is changed into 0.35 to 0.40, if the thickness of the substrate is about 0.6 mm (Fig. 3; NA is 0.30 to 0.55 under second optical disk SD).

11. Claims 38 and 39 have limitations similar to those treated in the above rejection, and are met by the references as discussed above. Claims 38 and 39 however also recite the following limitations which are also taught by the prior art of Tsuchiya:

- (a) with respect to Claim 38, changing a numerical aperture of an objective lens according to the determined thickness (Figs. 1 and 6; device 3 is an aperture controller).
- (b) with respect to Claim 39, the numerical aperture of the objective lens is changed into 0.35 to 0.40, if the thickness of the substrate is about 0.6 mm (Fig. 3; NA is 0.30 to 0.55 under second optical disk SD).

**Allowable Subject Matter**

12. Claims 37 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claims 37 and 40, the prior art of record fails to teach or fairly suggest an optical information recording apparatus having the following feature:

(a) the numerical aperture of the objective lens is changed into about 0.24, if the thickness of the substrate is about 1.2 mm.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

Kim-Kwok CHU  
*KK* 11/26/07  
Examiner AU2627  
November 20, 2007  
(571) 272-7585

*Hoa T. Nguyen*  
HOA T. NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

11/22/07